
**CURRICULUM/STATUTES & REGULATIONS
FOR
4 YEARS DEGREE PROGRAMME
IN
GENERAL SURGERY
(MS GENERAL SURGERY)**



UNIVERSITY OF HEALTH SCIENCES, LAHORE

STATUTES

Nomenclature of the Proposed Course

The name of degree programme shall be MS General Surgery. This name is well recognized and established for the last many decades worldwide.

Course Title:

MS General Surgery

Training Centers

Departments of General Surgery (accredited by UHS) in affiliated institutes of University of Health Sciences Lahore.

Duration of Course

The duration of MS General Surgery course shall be four (4) with structured training in a recognized department under the guidance of an approved supervisor.

After admission in M.S. General Surgery Programme the resident will spend first 6 Months in the Department of Surgery as **Induction period** during which resident will get orientation about the chosen discipline and will also undertake the **mandatory workshops** (Appendix E). The research project will be designed and the **synopsis** be prepared during this period.

On completion of Induction period the resident will start formal training in the Basic Principles of general surgery for 18 Months. During this period the resident shall get the research synopsis approved by ASRB. At the end of 2 years, the candidate will take up Intermediate Examination.

During the 3rd & 4th years of the programme, there are two components of the training:-

1. Clinical Training in General Surgery
2. Research and Thesis writing

The candidate shall undergo clinical training to achieve educational objectives of M.S. General Surgery (knowledge & alongwith rotations in the relivent fields). The training shall be competency based. There shall be generic and specialty specific competencies which will be assessed by Continuous Internal Assessment (appendix F&G)

Research Component and thesis writing shall be completed over the four years duration of the course. Candidates will spend total time equivalent on calendar year for research during the training. Research can be done as one block or it can be done in the form of regular periodic rotation over four years as long as total research time is equivalent one calendar year.

Admission Criteria

Applications for admission to MS Training Programs of the university will be invited through advertisement in print and electronic media mentioning closing date of applications and date of Entry Examination.

Eligibility: The applicant on the last date of submission of applications for admission must possess the:

- i) Basic Medical Qualification of MBBS or equivalent medical qualification recognized by Pakistan Medical & Dental Council.
- ii) Certificate of one year's House Job experience in institutions recognized by Pakistan Medical & Dental Council Is essential at the time of interview. The applicant is required to submit House Certificate from the concerned Medical Superintendent that the House Job shall be completed before the Interview.
- iii) Valid certificate of permanent or provisional registration with Pakistan Medical & Dental Council.

Registration and Enrollment

- As per policy of Pakistan Medical & Dental Council the number of PG Trainees/ Students per supervisor shall be maximum 05 per annum for all PG programmes including minor programmes (if any).
- Beds to trainee ratio at the approved teaching site shall be at least 5 beds per trainee.
- The University will approve supervisors for MS courses.
- Candidates selected for the courses after their enrollment at the relevant institutions shall be registered with UHS as per prescribed Registration Regulation.

Accreditation Related Issues of the Institution

A). Faculty

Properly qualified teaching staff in accordance with the requirements of Pakistan Medical and Dental Council (PMDC)

B). Adequate Space

Including class-rooms (with audiovisual aids), demonstration rooms, computer lab and clinical pathology lab etc.

C). Library

Departmental library should have latest editions of recommended books, reference books and latest journals (National and International).

- Accreditation of General Surgery training program can be suspended on temporary or permanent basis by the University, if the program does not comply with requirements for residents training as laid out in this curriculum.
- Program should be presented to the University along with a plan for implementation of curriculum for training of residents.
- Programs should have documentation of residents training activities and evaluation on monthly basis.

▪ To ensure a uniform and standardized quality of training and availability of the training facilities, the University reserves the right to make surprise visits of the training program for monitoring purposes and may take appropriate action if deemed necessary.

AIMS AND OBJECTIVES OF THE COURSE

AIM

The aim of four years MS programme in General Surgery is to train residents to acquire the competency of a specialist in the field so that they can become good teachers, researchers and clinicians in their specialty after completion of their training.

GENERAL OBJECTIVES

MS General Surgery training should enable a student to:

- Access and apply relevant knowledge to clinical practice:
 - Maintain currency of knowledge
 - Apply scientific knowledge in practice
 - Appropriate to patient need and context
 - Critically evaluate new technology
- Safely and effectively performs appropriate surgical procedures:
 - Consistently demonstrate sound surgical skills
 - Demonstrate procedural knowledge and technical skill at a level appropriate to the level of training
 - Demonstrate manual dexterity required to carry out procedures
 - Adapt their skills in the context of each patient and procedure
 - Maintain and acquire new skills

- Approach and carry out procedures with due attention to safety of patient, self and others
- Critically analyze their own clinical performance for continuous improvement
- Design and implement effective management plans:
 - Recognize the clinical features, accurately diagnose and manage surgical problems
 - Formulate a well-reasoned provisional diagnosis and management plan based on a thorough history and examination
 - Formulate a differential diagnosis based on investigative findings
 - Manage patients in ways that demonstrate sensitivity to their physical, social, cultural and psychological needs
 - Recognize disorders of the organ systems and differentiate those amenable to surgical treatment
 - Effectively manage the care of patients with trauma including multiple system trauma
 - Effectively recognize and manage complications
 - Accurately identify the benefits, risks and mechanisms of action of current and evolving treatment modalities
 - Indicate alternatives in the process of interpreting investigations and in decision-making
 - Manage complexity and uncertainty
 - Consider all issues relevant to the patient

- Identify risk
- Assess and implement a risk management plan
- Critically evaluate and integrate new technologies and techniques.
- Organize diagnostic testing, imaging and consultation as needed:
 - Select medically appropriate investigative tools and monitoring techniques in a cost-effective and useful manner
 - Appraise and interpret appropriate diagnostic imaging and investigations according to patients' needs
 - Critically evaluates the advantages and disadvantages of different investigative modalities
- Communicate effectively:
 - Communicate appropriate information to patients (and their family) about procedures, potentialities and risks associated with surgery in ways that encourage their participation in informed decision making
 - Communicate with the patient (and their family) the treatment options including benefits and risks of each

 - Communicate with and co-ordinate health management teams to achieve an optimal surgical environment
 - Initiate the resolution of misunderstandings or disputes

 - Modify communication to accommodate cultural and linguistic sensitivities of the patient

- Recognize the value of knowledge and research and its application to clinical practice:
 - Assume responsibility for self-directed learning
 - Critically appraise new trends in General Surgery
 - Facilitate the learning of others.
- Appreciate ethical issues associated with General Surgery:
 - Consistently apply ethical principles
 - Identify ethical expectations that impact on medico-legal issues
 - Recognize the current legal aspects of informed consent and confidentiality
 - Be accountable for the management of their patients.
- Professionalism by:
 - Employing a critically reflective approach to General Surgery
 - Adhering with current regulations concerning workplace harassment
 - Regularly carrying out self and peer reviewed audit
 - Acknowledging and have insight into their own limitations
 - Acknowledging and learning from mistakes
- Work in collaboration with members of an interdisciplinary team where appropriate:
 - Collaborate with other professionals in the selection and use of various types of treatments assessing and weighing the indications and contraindications associated with each type
 - Develop a care plan for a patient in collaboration with members of an interdisciplinary team
 - Employ a consultative approach with colleagues and other professionals

- Recognize the need to refer patients to other professionals.

- Management and Leadership
 - Effective use of resources to balance patient care and system resources
 - Identify and differentiate between system resources and patient needs
 - Prioritize needs and demands dealing with limited system resources.

 - Manage and lead clinical teams
 - Recognize the importance of different types of expertise which contribute to the effective functioning of clinical team.
 - Maintain clinically relevant and accurate contemporaneous records

- Health advocacy:
 - Promote health maintenance of patients
 - Advocate for appropriate health resource allocation
 - Promote health maintenance of colleagues and teacher

SPECIFIC LEARNING OUTCOMES

On completion of the training programme, General Surgical Trainees pursuing an academic pathway will be expected to have demonstrated competence in all aspects of the published syllabus. The specific training component would include the following areas:

- 1.** Establishing clearly defined standards of knowledge and skills required to practice General Surgery at secondary and tertiary care levels
- 2.** Understand Basic Sciences relevant to the surgical diseases and their management
- 3. General Surgery specialization areas:**

- Principles of Wound Healing – knowledge of collagen synthesis-stimulating and inhibitory factors primary and secondary intention prevention and treatment of dehiscence management of chronic wounds
- Suturing techniques
- Fluid/Electrolyte and Acid/Base Physiology with understanding of the normal physiology of body water and minerals, common derangements and principles of treatment
- Critical Care: know the basic principles of hemodynamic monitoring, acid/base physiology, oxygen consumption, oxygen delivery, respiratory failure, ventilation support and nutrition
- Trauma: know the systematic approach to managing multiply injured patients, indications for operative and non-operative management and the pathophysiology of injury
- Surgical Oncology: understand the basic principles of solid tumor management, the role of surgery in the multidisciplinary approach to diagnosis and treatment and the natural history of the most common malignancies (breast cancer, colon and other GI cancers, melanoma)
- Emergent Non-traumatic Surgical Problems: know the approach to evaluation of acute abdominal pain, indications for emergent surgical intervention and the diagnosis, natural history and treatment of the most common conditions that present as surgical emergencies

- Surgical Infections: understand the microbiology, predisposing factors, and treatment of nosocomial infection, post-operative wound infection and intra-abdominal abscess
- Surgical Diseases: be familiar with the natural history, diagnosis, pre-operative work-up, intra-operative approaches, post-operative management, and the recognition and treatment of post-operative complications of those diseases most commonly encountered by General Surgeons. These include:
 - Patients presenting with an acute abdomen
 - Assessment of the acute abdomen;
 - Peritonitis;
 - Acute appendicitis;
 - Acute presentation of gynaecological disease;
 - Acute intestinal obstruction
 - Manage infections of the skin and superficial tissues:
 - Superficial sepsis, including necrotizing infections
 - Manage primary and recurrent hernia of the abdominal wall in the acute or elective situation:
 - Obstructed hernia
 - Strangulated hernia
- Manage the patient with multiple injuries: the assessment of the multiply injured patient, including children
- Blunt and penetrating injuries
- Abdominal injuries especially splenic, hepatic and pancreatic injuries;
- Injuries of the urinary tract;

- Vascular injury
- Provide specialist surgical support in the management of conditions affecting the reticulo-endothelial and haemopoetic systems:
- Manage benign and malignant lesions of the skin and subcutaneous tissue
- Manage perforated peptic ulcer
- Manage acute GI haemorrhage
- Gastroscopy; Endoscopy for lower GI problems

- Manage the patient presenting with upper gastrointestinal symptoms, including dysphagia and dyspepsia:
- Elective oesophagogastric disorders
- Manage the patient presenting with symptoms referable to the biliary tract, including jaundice:
 - Acute gallstone disease;
 - Acute pancreatitis;
 - Elective HPB disorders
- Manage patients with symptoms of lower gastrointestinal disease such as change in bowel habit:
 - Benign colon conditions
 - Colorectal neoplasia
 - Inflammatory bowel disease
- Manage acute breast infection and recognize common breast conditions:
- Manage varicose veins
- Recognize the acutely ischaemic limb

4. Surgical Subspecialties: be familiar with the management of the most common symptom patterns, differential diagnosis, investigation and management of surgical conditions related to the following subspecialties;

- Emergency Surgery
- Central and peripheral nervous systems
- Head and neck surgery
- Thoracic surgery
- Gastrointestinal surgery
- Genitourinary surgery
- Laproscopic Surgery
- Traumatology
- Organ transplantation
- Surgical oncology etc.

i.) Trauma/Emergency Surgery Service

- Explain the importance of mechanism of injury in the evaluation of the acutely injured patient.
- Describe the pathophysiology of acutely injured patients, including
 - Hemorrhagic shock
 - Neurogenic shock
 - Obstructive shock
 - Traumatic brain injury
- Understand the role of imaging in the care of acutely injured patients.
- Describe the evaluation of the abdomen in the trauma patient.

- Delineate the steps in evaluation and management of long-bone and pelvic musculoskeletal injuries.
- Discuss perioperative fluid and electrolyte management.
- Articulate the evaluation and management of patients with post-operative fever.
- Explain the importance of injury prevention efforts.
- Understand the role of nutrition, physical therapy, rehabilitation, and family/social services in patient management.
- Take a history and perform physical examination to evaluate a patient with acute abdominal pain.
- The initial assessment and management of a patient in respiratory and/or cardiovascular arrest.
- Fluid management in resuscitation.
- Cardiovascular physiology and the basics of invasive monitoring techniques.
- Place bladder and gastric catheters.
- Basic principles of mechanical ventilation and troubleshooting common problems on mechanical ventilation
- Chest radiograph interpretation
- ABG interpretation
- ECG interpretation
- Basic principles of hemodynamic monitoring and introduction to the Pulmonary artery catheter
- Diagnosis and treatment of shock
- Management of various atrial and ventricular dysrhythmias
- Diagnosis and management of congestive heart failure

- Diagnosis and management of acute coronary syndromes
- The use of sedatives, analgesics, and neuromuscular blockade in the ICU
- The evaluation and initial management of oliguria and acute renal failure
- Basic principles of acid-base physiology
- Diagnosis and management of electrolyte disorders
- Nutritional assessment of the critically ill patient
- Administration of enteral and parenteral nutrition
- Evaluation and management of the anemic/thrombocytopenic patient
- Use of antithrombotic agents and blood products
- Central venous catheterization using ultrasound guidance
- Placement of chest tubes and arterial lines
- Introduction to bronchoscopy
- To appreciate the critical decision-making involved in the management of patients with vascular disease.
- The ability to construct a differential diagnosis, interpret investigations and construct a management plan for common conditions
- Undergoing exposure and training in a range of common surgical procedures
- Developing a number of generic and advanced operative skills specific to General Surgery
- Proficiency in handling critical and intensive care surgical illness
- Understand the indications, actions and monitoring of drugs used in the surgical diseases

ii.) Anesthesiology / Perioperative Care

- To introduce concepts of perioperative medicine including preoperative evaluation and intra- and post-operative management of the surgical patient
- To gain experience in the management of critical incidents, such as airway and vascular access.
- How to perform a preoperative evaluation of a patient including medical condition, physical status, airway examination, appropriate preoperative testing and the impact of anesthesia and surgery on their condition.
- General tenets of intraoperative medicine including monitoring (selection, steps in placement and basic interpretation of invasive monitors) and anesthetic options.
- How to recognize and manage common post-operative complications including pain, hypotension, respiratory depression, and myocardial ischemia.
- The pharmacology of anesthetic, sedative, narcotic and vasoactive medications.

iii.) Burn Service

- Understand early emergency care of burn patients including assessment of:
 - Airway, breathing, circulation
 - Extent and depth of burn
- Need for burn center referral
- Comprehend fluid resuscitation in burn patients with respect to:
 - Fluid composition
 - Calculating fluid requirements
 - Monitoring adequacy of resuscitation

- Understand the pathophysiology, diagnosis and treatment of inhalation injury.
- Understand general principles of wound management including:
 - Topical antimicrobials
 - Skin grafting techniques
 - Use of skin substitutes and biologic dressings.
- Develop a basic knowledge of the rehabilitation needs of burn patients.

iv.) Orthopaedic Surgery

- Demonstrate ability to take a history and perform the appropriate physical examination for a patient with a musculo-skeletal problem.
- Demonstrate the ability to organize the information obtained from a history and physical examination, formulate a differential diagnosis, and recommend options for treatment

- Understand what types of diagnostic imaging studies are useful in the evaluation of musculoskeletal problems. Understand how to interpret basic findings on plain radiographs, such as normal anatomy, common types of fractures, arthritis.
- Participate in the preoperative evaluation, surgical procedure, and postoperative care of patients undergoing surgical treatment of musculoskeletal problems.
- Understand the clinical and radiographic findings & the treatment options and objectives of common musculoskeletal problems including:
 - Bone and joint injury
 - Fractures & dislocations

- Acute soft tissue injury
- Ligament, tendon, nerve injuries
- Chronic soft tissue problems
- Tendonitis/bursitis
- Nerve compression/entrapment
- Joint instability
- Arthritis-degenerative and inflammatory
- Metabolic bone disease-osteoporosis
- Infection-bone (osteomyelitis) and joints (septic arthritis)
- Neoplastic bone disease

v.) Thoracic and Cardiovascular Surgery

- Learn the natural history and pathophysiology of cardiothoracic surgical diseases
- Be able to apply knowledge of cardiothoracic surgical diseases to the preoperative evaluation and postoperative care of a patient undergoing cardiothoracic surgery
- Develop a general understanding of surgical techniques and equipment specific to the specialty including the use of the cardiopulmonary bypass pump, hypothermia and tissue protection methods
- Learn about counseling activities to promote health
- The students should develop an appreciation of the procedures involved in the care of TCV patients, such as chest tubes, lines, monitoring, wound management, intubation, tracheostomies, gastrostomies, and VAC sponge treatment of wounds.

vi.) Transplant Surgery

- Establish a working understanding of the human immune system and ways to manipulate it as it applies to:
- Basic science of immunology
- Transplant recipients undergoing transplantation and the agents used
- Complications of immunosuppression likely to be encountered

vii.) Hepatobiliary Surgery

- Comprehend surgery of the liver and biliary tract as it relates to:
- Surgical anatomy of the liver and biliary tract
- Hepatic resections for benign and malignant liver lesions
- Bile duct reconstruction or bypass for benign and malignant strictures.
- Whole organ, split liver, and live donor liver transplants
- Pancreas transplantation for type I DM
- Understand portal hypertension in terms of:
 - Anatomy and pathophysiology of the portal venous system
 - Evaluation, treatment, and resuscitation of hemodynamically significant upper gastrointestinal bleed
 - Medical and non-shunt surgical therapy
 - Non-selective, selective and TIPSS shunt therapy
- Principles of management of complex, post-operative patients recovering from major hepatobiliary surgery
- Evaluation of hepatic masses/ Liver imaging

viii.) Urology

- The students should learn the pathophysiological basis of all urological diseases that they encounter in the hospital.

- General surgical problems arising in the renal failure patients
- Participation in the care of all urological inpatients.
- Insertion of a Foley's catheter in a male and female patient.
- The evaluation, work-up and management of patients with urolithiasis, prostate cancer, bladder cancer, renal carcinoma, carcinoma of the
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testes and scrotal masses, female urology- including incontinence and prolapse and the management of bladder outlet obstruction

- Additionally, students should understand how to read imaging as it pertains to Urology including CT scan of the abdomen and pelvis - with specific reference to the retroperitoneum, kidneys, ureters, bladder, retroperitoneal lymph nodes, prostate, and have a basic understanding of renal ultrasound and MRI.
- Understand fundamentals of renal transplantation
- Indications for dialysis and transplantation

ix.) Vascular Surgery

- To become proficient in the initial evaluation of patients with cerebrovascular, arterial occlusive, aneurysmal and venous disease.
- To understand the basic pathophysiology and treatment options for patients with cerebro-vascular, arterial occlusive, aneurysmal and venous disease.
- To become familiar with non-invasive testing for vascular disease.

x.) Gastrointestinal Surgery

- Demonstrate proficiency in the assessment and management of:
- The acute abdomen

- Gastro-oesophageal reflux and its complications
- Hiatus hernia
- Peptic ulceration and its complications
- Radiation enteritis
- Infantile pyloric stenosis
- Diagnostic upper GI endoscopy
- Swallowed foreign bodies
- Gastrointestinal bleeding
- Appendicitis and right iliac fossa pain
- Abdominal pain in children
- Peritonitis
- Acute intestinal obstruction
- Intestinal pseudo-obstruction
- Strangulated hernia
- Intestinal ischaemia
- Toxic megacolon
- Superficial sepsis and abscesses
- Acute ano-rectal sepsis
- Ruptured aortic aneurysm
- Neoplasms of the GI tract

xi.) Plastic Surgery

- Student should be able to conduct a basic physical exam and recognize important physical signs.
- Students should be competent in closure of cutaneous wounds.

- Specific items of knowledge that should be acquired during this rotation:
 - Diagnosis of congenital anomalies of the head and neck including clefting and craniofacial anomalies.
 - Physical diagnosis of hand injuries and disease.
 - Diagnosis and treatment of skin cancers.
 - Physiology of flaps and grafts.
 - Breast cancer treatment including reconstructive options.

xii.) Head & Neck surgery

- Maintenance of airway, Tracheostomy.
- Salivary gland disease.
- Lymph nodes
- Swellings of the neck
- Swellings of scalp and face
- Surgical flaps
- Oral malignancies

xiii.) Neurosurgery

- The student will acquire a fundamental knowledge including basic principles of Neurosurgery, along with recognition and surgical treatment of diseases of the central and peripheral nervous system.

xiv.) Ophthalmologic Surgery

- Students should be able to generally describe the basic organization/structures of the eye and the various ophthalmic subspecialties.

xv.) Otolaryngology

- Improve understanding of otolaryngologic pathology and normal variants.

- Improve diagnostic skills for otolaryngologic pathology.
- Be able to perform a general head and neck exam.
- Establish evaluation and treatment for otolaryngologic pathology, including need for surgical options.

xvi.) Surgical diseases of Reproductive System and Breast

- Surgical diseases of Prostate gland
- Pain and swelling in the scrotum
- Testicular diseases
- Principles of Endo Urology
- Gynaecological Surgery related to General Surgery, Pelvic inflammatory diseases, ectopic Pregnancy, ovarian cyst.
- Benign breast diseases
- Carcinoma breast
- Gynaecomastia
- Breast reconstruction
- Newer investigations in Pathology & Radiology

xvii.) Surgical Oncology

- Epidemiology of cancer and tumor registries.
- Principles of cancer treatment by surgery, radiotherapy, chemotherapy,
- Immunotherapy and Hormone therapy.
- Principles of molecular biology of cancer, carcinogenesis; genetic factors;

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| | <ul style="list-style-type: none">• Research and Thesis Writing: <p>Research work / Thesis writing must be completed and thesis be submitted atleast 6 months before the end of final year of the programme.</p> | <p>Thesis evaluation & defence will be carried out at the end of 4th calendar year of M.S. General Surgery Programme.</p> |
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Intermediate Examinations

Intermediate examination would be conducted for the candidate getting training in the discipline of General surgery, at the end of 2nd calendar year of the programme.

Eligibility Criteria:

The Candidates appearing in the Intermediate Examination shall be required:-

- a) To have submitted certificate of completion of mandatory workshops.
- b) To have submitted certificate / certificates of completion of first two years of training from the supervisor / supervisors of rotations.
- c) To have submitted CIS assessment proforma from his/her own supervisor on 03 monthly basis and also from his/her supervisors during rotation, achieving a cumulative score of 75%.
- d) To have submitted certificate of approval of synopsis or undertaking / affidavit that if synopsis not approved with 30 days of submission of application for the Intermediate Examination, the candidate will not be allowed to take the examinations and shall be removed from the training programme.
- e) To have submitted evidence of payment of examination fee.

Intermediate Examination Schedule and Fee

- a) Intermediate Examination at completion of two years training, will be held twice a year.
- b) There will be a minimum period of 30 days between submission of application for the examination and the conduction of examination.
- c) Examination fee will be determined periodically by the University.
- d) The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
- e) The Controller of Examinations will issue Roll Number Slips on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee.

Components of Intermediate Examination

The candidate of MS programme will appear in the subject of Principles of General Surgery and relevant Basic Sciences.

| | | |
|-----------------------------|---|-----------|
| Written Examination | = | 300 Marks |
| Clinical, TOACS/OSCE & ORAL | = | 200 Marks |

Written Examination

The written examination will consist of 100 single best answer type Multiple Choice Questions and 10 short Essay Questions. Each correct answer in the multiple choice question paper will carry 02 marks but an incorrect response will result in deduction of 0.5 mark. The short essay question examination will be clinical scenario or practice based, and each question will carry 10 marks.

The marks of written exam will be divided as follows:

| | | |
|-------------------------|---|-----------|
| MCQs (single best type) | = | 200 Marks |
| SEQs | = | 100 Marks |

Written Paper

| | | | |
|-------------------------------|---|---------|--------|
| Principals of General Surgery | = | 70 MCQs | 7 SEQs |
| Basic Sciences | = | 30 MCQs | 3 SEQs |

| | | | |
|--------------|---|---------|-------|
| Anatomy | = | 8 MCQs | 1 SEQ |
| Pharmacology | = | 4 MCQs | ----- |
| Pathology | = | 10 MCQs | 1 SEQ |
| Physiology | = | 8 MCQs | 1 SEQ |

The candidates scoring 50% marks in multiple choice question paper and 50% marks in short essay question paper will pass the written examination and will then be eligible to appear in the clinical and oral examination.

Clinical, TOACS/OSCE & ORAL

The clinical and Toacs/OSCE & Oral examination will evaluate patient care competencies in detail,

A panel of four examiners will be appointed by the Vice Chancellor of the University and of these two will be from within the university whilst two will be the external examiners. In case of difficulty in finding an internal examiner in a given subject, the Vice Chancellor would, in consultation with the concerned Deans will appoint any relevant person inside/ outside the University as an examiner.

The examination will be of 200 total marks consisting of the following components

Clinical, TOACS/OSCE & ORAL = Total Marks 200

- | | | |
|----------------------|---|-----------|
| a) 4 short Cases | = | 100 marks |
| b) 1 Long Case | = | 50 marks |
| c) TOACS/OSCE & ORAL | = | 50 marks |

- Each short case will be of 07 minutes duration, 05 minutes will be for examining the patient and 02 minutes for discussion.
- The long case and oral examination will each be of 15 minutes duration.

- The candidates scoring 50 % marks in each component of the Clinical and Toacs/OSCE & Oral will pass this part of the Intermediate Examination.

Declaration of Results

The Candidate will have to score 50% marks in written and clinical & oral components and a cumulative score of 60% to be declared successful in the Intermediate Examination.

A maximum total of four consecutive attempts (availed or unavailed) will be allowed in the Intermediate Examination during which the candidate will be allowed to continue his training program. If the candidate fails to pass his Intermediate Examination within the above mentioned limit of four attempts, the candidate shall be removed from the training program, and the seat would fall vacant, stipend/ scholarship if any would be stopped.

Final Examination M. S. General Surgery
(at the end of 4th Calendar year of the programme)

Eligibility Criteria:

To appear in the Final Examination the candidate shall be required:

- i) To have submitted the result of passing Intermediate Examination.
- ii) To have submitted the certificate of completion of training, issued by the Supervisor will be mandatory.
- iii) To have achieved a cumulative score of 75% in Continuous Internal assessments of all training years.
- iv) To have got the thesis submitted and will then be eligible to appear in Final Examination.
- v) To have submitted no dues certificate from all relevant departments including library, hostel, cashier etc.
- vi) To have submitted evidence of submission of examination fee.

Final Examination Schedule and Fee

- a) Final examination will be held twice a year.
- b) The candidates have to satisfy eligibility criteria before permission is granted to take the examination.

- c) Examination fee will be determined and varied at periodic intervals by the University.
- d) The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
- e) The Controller of Examinations will issue an Admittance Card with a photograph of the candidate on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee. This card will also show the Roll Number, date / time and venue of examination.

Components of Final Examination

| | |
|--|-----------------|
| Written Part of Final Examination | Total marks 500 |
| Clinical, TOACS/OSCE & ORAL | Total marks 500 |
| Contribution of CIS to the Final Examination | Total marks 100 |
| Thesis Evaluation | Total marks 400 |

Written Part of Final Examination

- a) There will be two written papers which will cover the whole syllabus of the specialty of training with total marks of 500.
- b) The written examination will consist of 200 single best answer type Multiple Choice Questions (MCQs) and 10 Short Essay Questions (SEQs). Each correct answer in the Multiple Choice Question paper will carry 02 marks, but an incorrect response will result in deduction of 0.5 mark. Each Short Essay Question will carry 10 marks.
- c) The Total Marks of the Written Examination will be 500 and to be divided as follows:

- Multiple Choice Question paper Total Marks = 400
- Short Essay Question paper Total Marks = 100

There shall be two written papers of 250 marks each. Both papers shall have problem-based short/modified essay questions and MCQs.

Paper 1

MCQs 100(2 marks each)

SEQs 5 (10 marks each)

Paper 2

MCQs 100(2 marks each)

SEQs 5 (10 marks each)

- d) The candidates securing a score of 50% marks in multiple choice question paper and short essay question paper will pass the written part of the final examination and will become eligible to appear in the clinical and oral examination.
- e) The written part result will be valid for three consecutive attempts for appearing in the Clinical and Oral Part of the Final Examination. After that the candidate shall have to re-sit the written part of the Final Examination.

Clinical, TOACS/OSCE & ORAL:

- a) The Clinical and Oral Examination will consist of 04 short cases, 01 long case and and Toacs/OSCE & Oral with 01 station for a pair of Internal and External Examiner Each short case will be of 07 minutes duration, 05

minutes will be for examining the patient and 02 minutes for discussion. The and Toacs/OSCE & Oral will consist of laboratory data assessment, interpretation of Radiology images, ECG and others.

- b) The Total Marks of Clinical and Toacs/OSCE & Oral will be 500 and to be divided as follows:

| | |
|-------------------|-------------------|
| Short Cases | Total Marks = 200 |
| Long Case | Total Marks = 100 |
| TOACS/OSCE & ORAL | Total Marks = 200 |

- c) A panel of four examiners will be appointed by the Vice Chancellor and of these two will be from the university whilst the other two will be the external examiners. Internal examiner will act as a coordinator. In case of difficulty in finding an Internal examiner in a given subject, the Vice Chancellor would, in consultation with the concerned Deans, appoint any relevant person with appropriate qualification and experience, outside the University as an examiner.
- d) The internal examiners will not examine the candidates for whom they have acted as Supervisor and will be substituted by other internal examiner.
- e) The candidates scoring 50% marks in each component of the Clinical & Oral Examination will pass this part of the Final Examination.
- f) The candidates will have two attempts to pass the final examination with normal fee. A special administration fee of Rs.10,000 in addition to normal fee or the amount determined by the University from time to time shall be charged for further attempts.

Continuous Internal Assessment (CIS)

Continuous Internal Assessment will be a stand-alone component. The marks for CIS as per 10% weightage formula will be 100 and will be added to the marks of other components of the final examination and of those of Thesis Evaluation as follows:

Thesis Evaluation:

According to the protocols defined by the University and would carry 400 marks.

Declaration of Result

For the declaration of result

- I. The candidate must get his/her Thesis accepted.
- II. The candidate must have passed the final written examination with 50% marks and the clinical & oral examination securing 50% marks. The cumulative passing score from the written and clinical/ oral examination shall be 60%. Cumulative score of 60% marks to be calculated by adding up secured marks of each component of the Examination i.e written and clinical/ oral and then calculating its percentage.
- III. The MS degree shall be awarded after acceptance of thesis and success in the final examination.
- IV. On completion of stipulated training period, irrespective of the result (pass or fail) the training slot of the candidate shall be declared vacant.

Submission / Evaluation of Synopsis

- a) The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on the university website.
- b) The research topic in clinical subject should have 30% component related to basic sciences and 70% component related to applied clinical sciences. The research topic must consist of a reasonable sample size and sufficient numbers of variables to give training to the candidate to conduct research, to collect & analyze the data.
- c) Synopsis of research project shall be got approved by the end of the 2nd year of MS program. The synopsis after review by an Institutional Review Committee, shall be submitted to the University for consideration by the Advanced Studies & Research Board, through the Principal / Dean /Head of the institution.

Submission of Thesis

1. Thesis shall be submitted by the candidate duly recommended by the Supervisor.
2. The minimum duration between approval of synopsis and submission of thesis shall be one year.
3. The research thesis must be compiled and bound in accordance with the Thesis Format Guidelines approved by the University and available on website.
4. The research thesis will be submitted along with the fee prescribed by the University.

Thesis Evaluation

- a) The candidate will submit his/her thesis at least 06 months prior to completion of training.
- b) The Thesis along with a certificate of approval from the supervisor will be submitted to the Registrar's office, who would record the date / time etc. and get received from the Controller of Examinations within 05 working days of receiving.
- c) The Controller of Examinations will submit a panel of eight examiners within 07 days for selection of four examiners by the Vice Chancellor. The Vice Chancellor shall return the final panel within 05 working days to the Controller of Examinations for processing and assessment. In case of any delay the Controller of Examinations would bring the case personally to the Vice Chancellor.
- d) The Supervisor shall not act as an examiner of the candidate and will not take part in evaluation of thesis.

- e) The Controller of Examinations will make sure that the Thesis is submitted to examiners in appropriate fashion and a reminder is sent after every ten days.
- f) The thesis will be evaluated by the examiners within a period of 06 weeks.
- g) In case the examiners fail to complete the task within 06 weeks with 02 fortnightly reminders by the Controller of Examinations, the Controller of Examinations will bring it to the notice of Vice Chancellor in person.
- h) In case of difficulty in find an internal examiner for thesis evaluation, the Vice Chancellor would, in consultation with the concerned Deans, appoint any relevant person as examiner in supersession of the relevant Clause of the University Regulations.
- i) There will be two internal and two external examiners. In case of difficulty in finding examiners, the Vice Chancellor would, in onsultation with the concerned Deans, appoint minimum of three, one internal and two external examiners.
- j) The total marks of thesis evaluation will be 400 and 60% marks will be required to pass the evaluation.
- k) The thesis will be considered / accepted, if the cumulative score of all the examiners is 60%.
- l) The clinical training will end at completion of stipulated training period but the candidate will become eligible to appear in the Final Examination at completion of clinical training and after acceptance of thesis. In case clinical training ends earlier, the slot will fall vacant after stipulated training period.

Award of MS General Surgery Degree

After successful completion of the structured course of MS General Surgery and qualifying Intermediate and Final examinations (Written Clinical, TOACS/OSCE & ORAL and Thesis) the degree with title MS General Surgery shall be awarded.

Course Content of MS General Surgery for Intermediate Examination

Basic sciences:

Student is expected to acquire comprehensive knowledge of Anatomy, Physiology, Pathology, and Pharmacology relevant to surgical practice

1. Anatomy

- Detailed Anatomy of the organ systems of body, their blood supply, nerve supply, lymphatic drainage and important gross relations to other organs as appropriate for surgical operations
- Developmental Anatomy and associated common congenital abnormalities
- Features of Surface, Imaging and Applied Anatomy within each organ system
- Relate knowledge to assessment of clinical situation or progress of disease condition

CARDIOVASCULAR:

- Embryogenesis of heart and major vessels, and formation of the lymphatic system
- Common anatomical variations of heart chambers, valves and major vessels
- Surgical anatomy of heart and major arteries + veins in thorax, neck, abdomen and groins

RESPIRATORY:

- Embryogenesis of trachea and bronchial tree
- Lung development
- Development and defects of diaphragm
- Common anatomical variations of respiratory tree and lungs to include vascular anomalies
- Surgical anatomy of pleura, lung and trachea and bronchial tree

GASTROINTESTINAL TRACT AND ABDOMINAL WALL:

- Embryogenesis of the GIT to include formation of the solid organs, anorectum, and abdominal wall

- Common anatomical variations in the formation of the GIT and abdominal wall
- Surgical anatomy of the GIT and its relations to other systems

RENAL:

- Embryogenesis of the upper and lower renal tract to include male and female genital development
- Common anatomical variations of the renal tract and genitalia
- Surgical anatomy of the renal tract, and associated genital structures to include relationships to other systems

NEUROLOGICAL:

- Embryogenesis of the brain and spinal cord, and of the supporting structures (skull, vertebral column)
- Common anatomical variations of the brain and spinal cord
- Surgical anatomy of the brain, spinal cord and major somatic nerves (to include relationships to other systems)

MUSCULO SKELETAL:

- Embryogenesis of the skeleton and muscle development
- Common anatomical variations of skeleton
- Surgical anatomy of skeleton where relevant to other systems

ENDOCRINE:

Development, defects and surgical anatomy of endocrine organs

2. Physiology

- Cellular organization, structure function correlations and physiological alterations in the organ systems of body
- Relate knowledge to assessment of clinical situation or progress of disease condition

FLUID BALANCE:

- Basic requirements of fluid and electrolytes at different ages
- Mechanisms of homeostasis
- Influence of disease states

- renal
- cardiac
- gastrointestinal
- trauma
- Mechanisms of homeostasis
- Abnormalities encountered in disease

ACID-BASE BALANCE:

- Basic requirements of fluid and electrolytes at different ages
- Mechanisms of homeostasis
- Influence of disease states

OXYGEN TRANSPORT:

- Airway function in health and disease
- Alveolar function and gas exchange
- Effect of disease
 - R.D.S.
 - Infection
 - Barotrauma
 - Prematurity
- Effect of foetal circulation

GASTROINTESTINAL TRACT:

- Motility of different regions of gut
- Secretion and absorption
- Function of sphincter regions
 - Gastroesophageal junction
 - Pylorus
 - Ileocaecal region
 - Anorectum
- Defaecation and continence

HEPATOBIILIARY FUNCTION AND PANCREATIC FUNCTION:

- Metabolic and synthetic hepatic function
- Bile production and transport
- Exocrine pancreatic function
- Effect of disease on normal function

RENAL TRACT:

- Renal mechanisms for maintenance of homeostasis
- Effect of disease
- Bladder function and continence
- Transitional renal physiology in neonate and young child

GROWTH AND METABOLISM:

- Nutritional requirements at different ages
- Endocrine factors influencing growth
 - thyroid
 - pituitary
 - pancreatic
 - adrenal
 - gonadal
- Effect of disease states including
 - chronic disease
 - trauma
 - response to operation
- Influence and use of parenteral and enteral feeding

AUTONOMIC NERVOUS SYSTEM:

- Differing effects of sympathetic and parasympathetic innervation
- Effects on differing physiological processes
- Membrane biochemistry and signal transduction
- Gene expression and the synthesis of proteins
- Bioenergetics; fuel oxidation and the generation of ATP
- Carbohydrate metabolism
- Lipid metabolism
- Nitrogen metabolism
- Enzymes and biologic catalysis

- Tissue metabolism
- Biotechnology and concepts of molecular biology with special emphasis on use of recombinant DNA techniques in medicine and the molecular biology of cancer

3. Pharmacology

- The Evolution of Medical Drugs
- British Pharmacopia
- Introduction to Pharmacology
- Receptors
- Mechanisms of Drug Action
- Pharmacokinetics
- Pharmacokinetic Process
 - Absorption
 - Distribution
 - Metabolism
 - Desired Plasma Concentration
 - Volume of Distribution
 - Elimination
 - Elimination rate constant and half life
 - Creatinine Clearance
- Drug Effect
 - Beneficial Responses
 - Harmful Responses
 - Allergic Responses
- Drug Dependence, Addiction, Abuse and Tolerance
- Drug Interactions
- Dialysis
- Drug use in pregnancy and in children

4. Pathology

Pathological alterations at cellular and structural level

- Inflammation
- Wound healing
- Cellular injury
- Vascular disorders
- Disorders of growth, differentiation and morphogenesis
- Tumours
- Surgical immunology
- Surgical haematology

Microbiology:

- Surgically important microorganisms
- Sources of infection
- Asepsis and antisepsis
- Sterilization
- Antibiotics
- High risk patient management

Basic principles of General Surgery for Intermediate Examination

- History of surgery
- Preparing a patient for surgery
- Principles of operative surgery: asepsis, sterilization and antiseptics
- Surgical infections and antibiotics
- Basic principles of anaesthesia and pain management
- Acute life support and critical care:
 - Pathophysiology and management of shock
 - Fluids and electrolyte balance/ acid base metabolism
 - Haemostasis, blood transfusion
- Trauma: assessment of polytrauma, triage, basic and advanced trauma
- Accident and emergency surgery
- Wound healing and wound management
- Nutrition and metabolism
- Principles of burn management
- Principles of surgical oncology
- Principles of laparoscopy and endoscopy
- Organ transplantation
- Informed consent and medico-legal issues
- Molecular biology and genetics
- Operative procedures for common surgical manifestations e.g. cysts, sinuses, fistula, abscess, nodules, basic plastic and reconstructive surgery

- Principles of basic diagnostic and interventional radiography
- Principles and interpretation of conventional and advanced radiographic procedures

Common Surgical Skills

Incision of skin and subcutaneous tissue:

- Langer's lines
- Healing mechanism
- Choice of instrument
- Safe practice

Closure of skin and subcutaneous tissue:

- Options for closure
- Suture and needle choice
- Safe practice

Knot tying:

- Choice of material
- Single handed
- Double handed
- Superficial
- Deep

Tissue retraction:

- Choice of instruments
- Placement of wound retractors
- Tissue forceps

Use of drains:

- Indications
- Types
- Insertion
- Fixation
- Management/removal

Incision of skin and subcutaneous tissue:

- Ability to use scalpel, diathermy and scissors

Closure of skin and subcutaneous tissue:

- Accurate and tension free apposition of wound edges

Haemostasis:

- Control of bleeding vessel (superficial)

- Diathermy
- Suture ligation
- Tie ligation
- Clip application
- Plan investigations
- Clinical decision making
- Case work up and evaluation; risk management

Pre-operative assessment and management:

- Cardiorespiratory physiology
- Diabetes mellitus
- Renal failure
- Pathophysiology of blood loss
- Pathophysiology of sepsis
- Risk factors for surgery
- Principles of day surgery
- Management of comorbidity

Intraoperative care:

- Safety in theatre
- Sharps safety
- Diathermy, laser use
- Infection risks
- Radiation use and risks
- Tourniquets
- Principles of local, regional and general anaesthesia

Post-operative care:

- Monitoring of postoperative patient
- Postoperative analgesia
- Fluid and electrolyte management
- Detection of impending organ failure
- Initial management of organ failure
- Complications specific to particular operation
- Critical care

Blood products:

- Components of blood
- Alternatives to use of blood products
- Management of the complications of blood product transfusion including children

Antibiotics:

- Common pathogens in surgical patients
- Antibiotic sensitivities
- Antibiotic side-effects
- Principles of prophylaxis and treatment

Safely assess the multiply injured patient:

- History and examination
- Investigation
- Resuscitation and early management
- Referral to appropriate surgical subspecialties

Technical Skills

- Central venous line insertion
- Chest drain insertion
- Diagnostic peritoneal lavage
- Bleeding diathesis & corrective measures, e.g. warming, packing
- Clotting mechanism; Effect of surgery and trauma on coagulation
- Tests for thrombophilia and other disorders of coagulation
- Methods of investigation for suspected thromboembolic disease
- Anticoagulation, heparin and warfarin
- Role of V/Q scanning, CT angiography and thrombolysis
- Place of pulmonary embolectomy
- Awareness of symptoms and signs associated with pulmonary embolism and DVT
- Role of duplex scanning, venography and d-dimer measurement
- Initiate and monitor treatment

Diagnosis and Management of Common Surgical Conditions:

- Abdominal pain
- Vomiting
- Trauma
- Groin conditions
 - Hernia
 - Hydrocoele
 - Penile inflammatory conditions
 - Undescended testis
 - Acute scrotum
- Abdominal wall pathologies
- Urological conditions
- Constipation

- Head / neck swellings
- Intussusception
- Abscess
- In growing toenail

In terms of general experience it is expected that trainees would have gained exposure to the following procedures and to be able to perform them.

- Elective Procedures
 - Inguinal hernia
- (not neo-natal)
 - Orchidopexy
 - Circumcision
 - Lymph node biopsy
 - Abdominal wall herniae
 - Insertion of CV lines
 - Management of in growing toenails
 - EUA rectum
 - Manual evacuation
 - Open rectal biopsy
 - Excision of skin lesions
- Emergency Procedures
 - Appendicectomy
 - Incision and drainage of abscess
 - Pyloromyotomy
 - Operation for testicular torsion
 - Insertion of pleural drain
 - Insertion of suprapubic catheter
 - Reduction of intussusception

Final Examination **MS General Surgery**

Final Examination shall comprise three components:

1. Clinical (both didactic & practical skills and pocedures)
2. Research and Thesis writing
3. Continuous Internal Assessment

Professional Education in General Surgery

| TOPICS | PRACTICAL PROCEDURES |
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| 1.Non Trauma Emergency Surgery | |
| Assessment of the acute abdomen | <i>Diagnostic laparoscopy</i> |

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| Biliary tract emergencies | Closure of perforated peptic ulcer, open and laparoscopic |
| Acute pancreatitis | Endoscopy for upper GI bleeding |
| Swallowed foreign bodies | Operations for GI bleeding including partial gastrectomy |
| Gastrointestinal bleeding | Emergency cholecystectomy |
| Appendicitis and right iliac fossa pain | Emergency hernia repair |
| Abdominal pain in children | Laparotomy for small bowel obstruction |
| Peritonitis | Small bowel resection |
| Acute intestinal obstruction | Ileostomy |
| Intestinal pseudo-obstruction | Laparotomy for large bowel obstruction |
| Strangulated hernia | Laparotomy for perforated colon |
| Intestinal ischaemia | Hartmann's operation |
| Toxic megacolon | Colostomy |
| | Appendicectomy |
| Acute ano-rectal sepsis | Drainage of ano-rectal sepsis |
| Ruptured aortic aneurysm | Laparotomy for post operative complications |
| Acutely ischaemic limb | Urethral catheterization |
| Acute presentations of urological disease | Suprapubic cystostomy |
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| Acute presentations of gynaecological disease | Exploration of scrotum |
| Scrotal emergencies in all age groups | Reduction of paraphimosis |
| | Embolectomy |
| | Fasciotomy |

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| | <i>Organ retrieval for transplantation</i> |
| 2. Trauma Surgery | |
| <p>Assessment of the multiple injured patient including children</p> <p>Closed abdominal injuries, especially splenic, hepatic and pancreatic injuries</p> <p>Closed chest injuries</p> <p>Stab and gunshot wounds</p> <p>Arterial injuries</p> <p>Injuries of the urinary tract</p> <p>Initial management of head injuries and interpretation of CT scans</p> <p>Initial management of severe burns</p> | <p>Tracheostomy</p> <p>Emergency thoracotomy</p> <p>Splenectomy for trauma</p> <p>Laparotomy for abdominal injury</p> |
| 3. Surgical sepsis | |
| <p>Superficial sepsis and abscesses</p> <p>Pyomyositis</p> <p>Abdominal sepsis</p> <p>Empyema and thoracic sepsis</p> <p>Intracranial sepsis</p> <p>Tuberculous disease of the chest and abdomen</p> | <p>Drainage of superficial abscesses</p> <p>Laparotomy for sepsis</p> <p>Chest drainage for sepsis</p> <p>Thoracotomy for sepsis</p> <p>Burr holes and craniotomy for intracranial abscess</p> |
| 4. Critical care | |
| Hypotension | Tracheal Intubation |

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| <p>Haemorrhage</p> <p>Haemorrhagic and thrombotic disorders</p> <p>Blood transfusion and blood component therapy</p> <p>Septicaemia and the sepsis syndrome</p> <p>Antibiotic therapy and the management of opportunist infection</p> <p>Gastro-intestinal fluid losses and fluid balance, including in children</p> <p>Nutritional failure and nutritional support</p> <p>Respiratory failure</p> <p>Renal failure and principles of dialysis</p> <p>Fluid overload and cardiac failure</p> <p>Myocardial ischaemia</p> <p>Cardiac arrhythmias</p> <p>Multiple organ failure</p> <p>Pain control</p> <p>Cardiac arrest, respiratory arrest and brain death</p> <p><i>Organ donation</i></p> <p>Hypo and hyperthermia</p> | <p>Tracheostomy</p> <p>Surgical airway</p> <p>Cardio-pulmonary resuscitation</p> <p>Chest drain insertion</p> <p>Central venous line insertion</p> <p>Insertion of peritoneal dialysis catheter</p> <p>Primary vascular access for haemodialysis</p> <p>A detailed knowledge of the methods and results of invasive monitoring will <i>not</i> be required</p> |
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Diagnosis of brain death
Legal & ethical aspect of transplantation

5. Gastrointestinal surgery

Neoplasms of the upper GI tract

Gastro-oesophageal reflux and its complications

Hiatus hernia

Peptic ulceration and its complications

Diagnostic upper GI endoscopy

Oesophageal dilatation

Oesophageal stenting

Laser recanalisation

Mucosal resection

Staging laparoscopy & laparoscopic ultrasound scanning

Oesophagectomy

Total and subtotal gastrectomy

Extended lymphadenectomy for gastric cancer

Laparoscopic anti-reflux surgery

Open anti-reflux surgery

Repair of para-oesophageal hiatus hernia

Re-do gastric surgery

Re-do anti-reflux surgery

Heller's myotomy ,open and laparoscopic

Long oesophageal myotomy

Pharyngeal pouch

Laparoscopic splenectomy

Operations for morbid obesity

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| <p>Gallstone disease</p> <p>Jaundice</p> <p>Radiation enteritis</p> <p>Neoplasms of large bowel</p> <p>Inflammatory bowel disease (inc medical management)</p> <p>Diverticular disease</p> <p>Irritable bowel syndrome</p> <p>Haemorrhoids</p> <p>Anal fissure</p> <p>Rectal prolapse</p> <p>Fistula in ano</p> <p>Diverticular disease/fistula</p> <p>Colostomy complications</p> <p>Ileostomy complications</p> | <p>Endoscopic control of upper GI bleeding</p> <p>Variceal banding/sclerotherapy</p> <p><i>Laparoscopic cholecystectomy</i></p> <p><i>Conversion to open cholecystectomy</i></p> <p>Exploration of common bile duct</p> <p>Biliary bypass</p> <p>Gastrectomy</p> <p>Splenectomy</p> <p>Proctoscopy/rigid sigmoidoscopy</p> <p>Flexible sigmoidoscopy & colonoscopy, diagnostic and therapeutic</p> <p>Outpatient haemorrhoid treatment</p> <p>Haemorrhoidectomy</p> <p>Procedures for fistula in ano</p> <p>Right hemicolectomy</p> <p>Left hemicolectomy</p> <p>Sub-total colectomy</p> <p>Resections for rectal cancer, restorative and excisional</p> <p>Illeorectal anastomosis</p> <p>Panproctocolectomy</p> <p>Closure of Hartmann's procedure</p> <p>Rectal injuries</p> |
| <p>6. Hepatopancreaticobiliary Surgery</p> | |

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| <p>Chronic pancreatitis</p> <p>Complex liver injuries</p> <p>Hydatid disease</p> <p>Management of primary & secondary hepatic and choledochal neoplasms</p> <p>Other conditions of the liver and biliary tract</p> <p>Pancreatic neoplasms</p> <p>Chronic liver disease</p> <p>Liver failure</p> <p>Pancreatic insufficiency</p> <p>Imaging & endoluminal ultrasound</p> <p>Hepatitis</p> | <p>ERCP and endoscopic sphincterotomy</p> <p>Biliary stenting</p> <p>Pancreatic stenting</p> <p>Biliary reconstruction</p> <p>Pancreatectomy all types</p> <p>Treatment of pancreatic necrosis</p> <p>Drainage of pancreatic pseudo-cyst</p> <p>Porto-systemic shunt</p> <p>Liver resection</p> <p>Laparoscopic exploration of bile duct</p> <p>Staging laparoscopy & laparoscopic ultrasound scanning</p> |
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7. Surgery of the skin & integument

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| <p>Pathology, diagnosis and management of skin lesions, benign and malignant</p> <p>Basal and squamous cell carcinoma</p> <p>Malignant melanoma</p> <p>Other skin cancers</p> | <p>Excision of skin lesions</p> <p>Excision of skin tumours</p> <p>Split and full thickness skin grafting</p> <p>Node biopsy</p> <p>Block dissection of axilla and groin</p> <p>Surgery for soft tissue tumours including sarcomas</p> |
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8. Endocrine surgery / neck surgery

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| <p>Diagnosis & management of neck lumps</p> <p>Physiology & pathology of</p> | <p>Thyroid lobectomy</p> <p>Retrosternal goitre</p> <p>Thyroglossal cystectomy</p> |
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| <p>Thyroid</p> <p>Parathyroid</p> <p>Adrenal cortex</p> <p>Adrenal medulla</p> <p>Management of :-</p> <p>Thyrotoxicosis</p> <p>Adrenal insufficiency</p> <p>Hyper and hypo thyroidism</p> <p>Carcinoid syndrome</p> <p>Anaesthetic and pharmacological problems</p> <p>Imaging techniques for endocrine organs</p> | <p>Submandibular salivary gland excision</p> <p>Parotidectomy</p> <p>Approach and exploration of adrenal glands</p> |
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9. Breast surgery

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| <p>Carcinoma of the breast</p> <p>Benign breast disease</p> <p>Hormone therapy for benign and malignant breast disease</p> <p>Histo-/cytopathology</p> <p>Mammography</p> <p>Ultrasound</p> <p>Adjuvant chemotherapy</p> <p>Chemotherapy for advanced disease</p> <p>Radiotherapy</p> <p>Counselling</p> | <p>Treatment of breast abscess</p> <p>Fine needle aspiration cytology</p> <p>Needle localisation biopsy</p> <p>Trucut biopsy</p> <p>Mammary duct fistula</p> <p>Excision of breast lump</p> <p>Mastectomy</p> <p>Wide excision of breast tumours</p> <p>Axillary dissection with other breast operations</p> <p>Breast duct excision</p> |
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| Hospice care | Microdochoectomy Reconstruction Myocutaneous flaps Tissue expanders Complications and re-operation Breast reduction |
| 10. Hernias | |
| External and internal abdominal herniae. Anatomy, presentation, complications Hernia in childhood | Surgery for all abdominal herniae, using open <i>and laparoscopic</i> techniques Repair of childrens' herniae |
| 11. Genitourinary Surgery | |
| Principles of the surgical treatment of Kidney. Investigations in Urology Urinary tract infections Urinary calculi. Transplantation | Dialysis and renal transplant Suprapubic catheter insertion Urethral catheterization Suprapubic cystostomy Pyeloplasty Partial Nephrectomy Management of renal calculi Operative destruction of valves Complex hypospadias repair Nephrectomy Reimplantation of ureters Operative management of impalpable |

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| <p>Surgical diseases of Prostate gland Pain and swelling in the scrotum Testicular diseases Male sterilization, including counseling and informed consent Principles of Endo Urology Gynaecological Surgery related to General Surgery, Pelvic inflammatory diseases, ectopic, ovarian cyst.</p> | <p>testis Operative relief of urinary obstruction (e.g. stent insertion) Operations for hydrocoele, epididymal cyst and varicocoele Adult circumcision Vasectomy</p> |
| <p>12. Paediatric surgery</p> | |
| <p>Infantile pyloric stenosis Childrens tumours e.g. Wilms Congenital abnormalities of bladder and abdominal wall Anorectal anomalies Tracheoesophageal abnormalities</p> | <p>Ramstedt's procedure Orchidopexy Circumcision in children</p> |
| <p>13. Vascular surgery</p> | |
| <p>Atherosclerosis Ischaemic limb Aneurysmal disease Venous thrombosis & embolism</p> | <p>Vascular suture/anastomosis Approach to/control of infra-renal aortic, iliac and femoral arteries Control of venous bleeding</p> |

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| Hyper-hypo coagulable state | <i>Balloon thrombo-embolectomy</i> |
| Chronic venous insufficiency | Amputations of the lower limb |
| Arteriography | Fasciotomy |
| Vascular CT scanning | Primary operation for varicose veins |
| <i>Magnetic Resonance Angiography</i> | <i>Abdominal aortic aneurysm repair,</i> |
| <i>Vascular ultrasound</i> | <i>elective and ruptured</i> |
| Varicose veins | <i>Femoro-popliteal bypass</i> |
| Mesenteric ischaemia | <i>Femoro-femoral bypass</i> |

14. Transplant Surgery

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| Pathology of renal and hepatic disease | Donor nephrectomy |
| Patho-physiology of renal and hepatic failure | Donor hepatectomy |
| Peritoneal and haemo-dialysis | Renal transplantation |
| Selection of patients for transplantation | Uretero-neocystostomy |
| Post-operative management | Uretero-ureterostomy |
| Immuno-pathology of rejection | Renal biopsy |
| Management of rejection | Transplant nephrectomy |
| Immunosuppression | Vascular access |
| Opportunist infections | Peritoneal access |
| Immunosuppression and cancer | Drainage of intra-and extra-peritoneal collections |
| Transmission of viral and fungal diseases | Live donor transplantation |
| | Renal procedures:- |
| | Work bench preparation of the kidney |
| | Ileal and colonic conduits |

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| <p>Tissue typing</p> <p>The HLA system</p> <p>Bladder dysfunction</p> <p>Preservation of organs</p> <p>Legal & ethical aspects of transplantation</p> | <p>Uretero-pyelostomy</p> <p>Bladder (psoas) hitch</p> <p>Boari flap</p> <p>Partial nephrectomy</p> <p>Bilateral nephrectomy</p> <p>Secondary vascular access</p> <p>Renal artery reconstruction</p> <p>Renal vein reconstruction</p> <p>Parathyroidectomy</p> <p>Pancreatic procedures:-</p> <p>Donor pancreatectomy</p> <p>Pancreatic transplantation</p> <p>Hepatic procedures:-</p> <p>Liver transplantation</p> |
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15. Endoscopic Surgery

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| <p>Theory and practice of choledochoscopy</p> <p>Theory of different forms of diathermy</p> <p>Laparoscopic ultrasound</p> <p>Advanced instrumentation and equipment</p> <p>Endoscopic suturing devices</p> <p>Theory, uses and dangers of lasers and other energy sources e.g.</p> | <p>Laparoscopic repair of all types of hernia</p> <p>Laparoscopic anti-reflux procedures</p> <p>Laparoscopic splenectomy</p> <p>Laparoscopic large bowel resection</p> <p>Laparoscopic rectopexy</p> <p>Laparoscopic exploration of CBD</p> <p>Laparoscopic closure of perforated duodenal ulcer</p> <p>Laparoscopic adrenalectomy</p> <p>Laparoscopic operations for morbid</p> |
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| <p>harmonic scalpel</p> <p>Creation and maintenance of new endoscopic spaces</p> <p>Use of assistance robots and robotic instruments</p> <p>Minilaparoscopy</p> <p>Ultrasound interpretation, internal and external techniques</p> | <p>obesity</p> <p>Laparoscopic abdominal lymphadenectomy</p> <p>Other major laparoscopic and laparoscopically assisted procedures</p> |
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16. Cardiac and Thoracic Surgery

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| <p>Myocardial revascularisation</p> <p>Valvular Disorders</p> <p>Peripheral vascular disease</p> <p>Renovascular disease</p> <p>Secondary Hypertension</p> <p>Inflammatory Lung Disease</p> <p>Chest Wall lesions</p> <p>Thoracic Neoplastic Disease</p> <p>Chest Trauma</p> <p>Pleural Diseases</p> | <p>Cardiopulmonary Bypass, Myocardial Protection and Circulatory Support</p> <p>Mitral valve repair and secondary procedures to be developed in the post CCT period.</p> <p>Cardiothoracic Trauma</p> <p>Repair pectus excavatum</p> <p>Thoracotomy</p> <p>Foreign body retrieval</p> <p>Competence in performing appropriate</p> <p>Mediastinal exploration</p> <p>Thoracic incisions</p> <p>Open biopsy of lung</p> <p>Pulmonary lobectomy</p> |
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17. Other surgical specialties

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| Limb trauma | Open and closed reduction of dislocations |
| Open and closed Fractures | Manipulation and POP splintage of fractures |
| Dislocation of joints | Skin and skeletal traction |
| Nerve injuries | Open fracture debridement |
| Flexor and extensor tendon repairs | External fixation and Nerve repair |
| Acute septic arthritis | Flexor and extensor tendon repair |
| | Surgical approaches to the joints and arthrotomy |
| Spinal injury | Emergency management of spinal injury |
| Head injury | Emergency management of closed and open head injury |
| | Burr holes and craniotomy |
| Open and closed Chest injuries | Insertion and management of chest drains |
| | Thoracotomy and post operative management |
| Obstetric and gynaecological emergencies | Approaches to the female pelvis |
| | Episiotomy |
| | Caesarian section |
| | Surgery for ruptured ectopic pregnancy |

| | |
|---|---|
| <p>Anaesthesia</p> <p>Research and ethics</p> <p>Critical appraisal of the surgical literature</p> <p>Scientific method & statistics as applied to surgery</p> <p>Informed consent</p> <p>Ethical aspects of surgical practice</p> <p>Genetic aspects of surgical disease</p> | <p>Use of local anaesthesia</p> <p>Digital block</p> <p>Axillary block</p> <p>Spinal anaesthesia</p> <p>Use of ketamine</p> <p>Simple general anaesthesia</p> |
|---|---|

Mandatory Rotations During 3rd & 4th Year of the Programme

1st Year

- Basic Surgical Skills (Inpatient, Outpatient and Minor OT) (6 months)
- Acute/ Critical Care Surgery (6 months)

2nd Year

- General Surgical Skills (Inpatient, Outpatient and OT) (3 months)
- Acute/ Critical Care Surgery (2 months)

- Vascular Surgery (1 month)
- Radiology (1 month)
- Burn Service (2 months)
- Pediatric Surgery (2 months)
- Endoscopic Surgery (1 month)

3rd Year

- General Surgical Skills (Inpatient, Outpatient and OT) (3 months)
- Acute/ Critical Care Surgery (1 months)
- Gastrointestinal Surgery (3 months)
- Orthopaedic Surgery (1 month)
- Plastic Surgery and Breast Surgery (2 month)
- Endoscopic Surgery (1 month)
- Urology (1 month)

4th Year

- General Surgical Skills (Inpatient, Outpatient and OT) (3 months)
- Acute/ Critical Care Surgery (1 months)
- Hepatopancreaticobiliary Surgery (3 month)
- Surgical Oncology (1 month)
- Cardiothoracic Surgery (1 month)
- Head and Neck Surgery (1 month)
- Transplant Surgery (1month)
- Neurosurgery (1 month)

Final Examination **Thesis Component**

RESEARCH/ THESIS WRITING

Total of one year will be allocated for work on a research project with thesis writing. Project must be completed and thesis be submitted before the end of training. Research can be done as one block in 4th year of training or it can be stretched over four years of training in the form of regular periodic rotations during the course as long as total research time is equivalent to one calendar year.

Research Experience

The active research component program must ensure meaningful, supervised research experience with appropriate protected time for each resident while maintaining the essential clinical experience. Recent productivity by the program faculty and by the residents will be required, including publications in peer-reviewed journals. Residents must learn the design and interpretation of research studies,

responsible use of informed consent, and research methodology and interpretation of data. The program must provide instruction in the critical assessment of new therapies and of the surgical literature. Residents should be advised and supervised by qualified staff members in the conduct of research.

Clinical Research

Each resident will participate in at least one clinical research study to become familiar with:

1. Research design
2. Research involving human subjects including informed consent and operations of the Institutional Review Board and ethics of human experimentation
3. Data collection and data analysis
4. Research ethics and honesty
5. Peer review process

This usually is done during the consultation and outpatient clinic rotations.

Case Studies or Literature Reviews

Each resident will write, and submit for publication in a peer-reviewed journal, a case study or literature review on a topic of his/her choice.

Laboratory Research

Bench Research

Participation in laboratory research is at the option of the resident and may be arranged through any faculty member of the Division. When appropriate, the research may be done at other institutions.

Research involving animals

Each resident participating in research involving animals is required to:

1. Become familiar with the pertinent Rules and Regulations of the University of Health Sciences Lahore i.e. those relating to "Health and Medical Surveillance Program for Laboratory Animal Care Personnel" and "Care and Use of Vertebrate Animals as Subjects in Research and Teaching"
2. Read the "Guide for the Care and Use of Laboratory Animals"

3. View the videotape of the symposium on Humane Animal Care

Research involving Radioactivity

Each resident participating in research involving radioactive materials is required to

1. Attend a Radiation Review session
2. Work with an Authorized User and receive appropriate instruction from him/her.

METHODS OF INSTRUCTION/COURSE CONDUCTION

As a policy, active participation of students at all levels will be encouraged. Following teaching modalities will be employed:

1. Lectures
2. Seminar Presentation and Journal Club Presentations
3. Group Discussions
4. Grand Rounds
5. Clinico-pathological Conferences
6. SEQ as assignments on the content areas
7. Skill teaching in ICU, Operation Theatres, emergency and ward settings
8. Attend genetic clinics and rounds for at least one month.
9. Attend sessions of genetic counseling
10. Self study, assignments and use of internet
11. Bedside teaching rounds in ward
12. OPD & Follow up clinics
13. Long and short case presentations

In addition to the conventional teaching methodologies interactive strategies like conferences will also be introduced to improve both communication and clinical skills in the upcoming consultants. Conferences must be conducted regularly as scheduled and attended by all available faculty and residents. Residents must actively request autopsies and participate in formal review of gross and microscopic pathological material from patients who have been under their care. It is essential that residents participate in planning and in conducting conferences.

1. Clinical Case Conference

Each resident will be responsible for at least one clinical case conference each month. The cases discussed may be those seen on either the

consultation or clinic service or during rotations in specialty areas. The resident, with the advice of the Attending Surgeon on the Consultation Service, will prepare and present the case(s) and review the relevant literature.

2. Monthly Student Meetings

Each affiliated medical college approved to conduct training for MS General Surgery will provide a room for student meetings/discussions such as:

- a.** Journal Club Meeting
- b.** Core Curriculum Meetings
- c.** Skill Development

a. Journal Club Meeting

A resident will be assigned to present, in depth, a research article or topic of his/her choice of actual or potential broad interest and/or application. Two hours per month should be allocated to discussion of any current articles or topics introduced by any participant. Faculty or outside researchers will be invited to present outlines or results of current research activities. The article should be critically evaluated and its applicable results should be highlighted, which can be incorporated in clinical practice. Record of all such articles should be maintained in the relevant department.

b. Core Curriculum Meetings

All the core topics of General Surgery should be thoroughly discussed during these sessions. The duration of each session should be at least two hours once a month. It should be chaired by the chief resident (elected by the residents of the relevant discipline). Each resident should be given an opportunity to brainstorm all topics included in the course and to generate new ideas regarding the improvement of the course structure

c. Skill Development

Two hours twice a month should be assigned for learning and practicing clinical skills.

List of skills to be learnt during these sessions is as follows:

1. Residents must develop a comprehensive understanding of the indications, contraindications, limitations, complications, techniques, and interpretation of results of those technical procedures integral to the discipline (pg.34-43) (mentioned in the Log Book).
2. Residents must acquire knowledge of and skill in educating patients about the technique, rationale and ramifications of procedures and in obtaining procedure-specific informed consent. Faculty supervision of residents in their performance is required, and each resident's experience in such procedures must be documented by the program director.
3. Residents must have instruction in the evaluation of medical literature, clinical epidemiology, clinical study design, relative and absolute risks of disease, medical statistics and medical decision-making.
4. Training must include cultural, social, family, behavioral and economic issues, such as confidentiality of information, indications for life support systems, and allocation of limited resources.
5. Residents must be taught the social and economic impact of their decisions on patients, the primary care physician and society. This can be achieved by attending the bioethics lectures and becoming familiar with Project Professionalism Manual Residents should have instruction and experience with patient counseling skills and community education.
6. This training should emphasize effective communication techniques for diverse populations, as well as organizational resources useful for patient and community education.
7. Residents should have experience in the performance of General Surgery related clinical laboratory and radionuclide studies and basic laboratory techniques, including quality control, quality assurance and proficiency standards
8. Each resident will manage at least the following essential surgical cases and observe and participate in each of the procedures, preferably done on patients under supervision initially and then independently

3. Annual Grand Meeting

Once a year all residents enrolled for MS General Surgery should be invited to the annual meeting at UHS Lahore.

One full day will be allocated to this event. All the chief residents from affiliated institutes will present their annual reports. Issues and concerns related to their relevant courses will be discussed. Feedback should be collected and suggestions should be sought in order to involve residents in decision making.

The research work done by residents and their literary work may be displayed.

In the evening an informal gathering and dinner can be arranged. This will help in creating a sense of belonging and ownership among students and the faculty.

LOG BOOK

The residents must maintain a log book and get it signed regularly by the supervisor. A complete and duly certified log book should be part of the requirement to sit for MS examination. Log book should include adequate number of diagnostic and therapeutic procedures observed and performed the indications for the procedure, any complications and the interpretation of the results, routine and emergency management of patients, case presentations in CPCs, journal club meetings and literature review.

Proposed Format of Log Book is as follows:

Candidate's Name: _____

Roll No. _____

The above mentioned procedures shall be entered in the log book as per format (pg.34-45):

Procedures Performed

| Sr.# | Date | Name of Patient, Age, Sex & Admission No. | Diagnosis | Procedure Performed | Supervisor's Signature |
|------|------|---|-----------|---------------------|------------------------|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |

Emergencies Handled

| Sr. # | Date | Name of Patient, Age, Sex & Admission No. | Diagnosis | Procedure /Management | Supervisor's Signature |
|-------|------|---|-----------|-----------------------|------------------------|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |

Case Presented

| Sr. # | Date | Name of Patient, Age, Sex & Admission No. | Case Presented | Supervisor's Signature |
|-------|------|---|----------------|------------------------|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Seminar/Journal Club Presentation

| Sr. # | Date | Topic | Supervisor's signature |
|-------|------|-------|------------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

Evaluation Record

(Excellent, Good, Adequate, Inadequate, Poor)

At the end of the rotation, each faculty member will provide an evaluation of the clinical performance of the fellow.

| Sr. # | Date | Method of Evaluation (Oral, Practical, Theory) | Rating | Supervisor's Signature |
|-------|------|---|--------|---------------------------|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

EVALUATION & ASSESSMENT STRATEGIES

Assessment

It will consist of action and professional growth oriented *student-centered integrated assessment* with an additional component of *informal internal assessment, formative assessment* and measurement-based *summative assessment*.

Student-Centered Integrated Assessment

It views students as decision-makers in need of information about their own performance. Integrated Assessment is meant to give students responsibility for deciding what to evaluate, as well as how to evaluate it, encourages

students to 'own' the evaluation and to use it as a basis for self-improvement. Therefore, it tends to be growth-oriented, student-controlled, collaborative, dynamic, contextualized, informal, flexible and action-oriented.

In the proposed curriculum, it will be based on:

- Self Assessment by the student
- Peer Assessment
- Informal Internal Assessment by the Faculty

Self Assessment by the Student

Each student will be provided with a pre-designed self-assessment form to evaluate his/her level of comfort and competency in dealing with different relevant clinical situations. It will be the responsibility of the student to correctly identify his/her areas of weakness and to take appropriate measures to address those weaknesses.

Peer Assessment

The students will also be expected to evaluate their peers after the monthly small group meeting. These should be followed by a constructive feedback according to the prescribed guidelines and should be non-judgmental in nature. This will enable students to become good mentors in future.

Informal Internal Assessment by the Faculty

There will be no formal allocation of marks for the component of Internal Assessment so that students are willing to confront their weaknesses rather than hiding them from their instructors.

It will include:

- a.** Punctuality
- b.** Ward work

- c. Monthly assessment (written tests to indicate particular areas of weaknesses)
- d. Participation in interactive sessions

Formative Assessment

Will help to improve the existing instructional methods and the curriculum in use

Feedback to the faculty by the students:

After every three months students will be providing a written feedback regarding their course components and teaching methods. This will help to identify strengths and weaknesses of the relevant course, faculty members and to ascertain areas for further improvement.

Summative Assessment

It will be carried out at the end of the programme to empirically evaluate cognitive, psychomotor and affective domains in order to award diplomas for successful completion of courses.

MS General Surgery Examinations

Intermediate Examination MS General Surgery **Total Marks: 500**

All candidates admitted in MS General Surgery course shall appear in Intermediate examination at the end of 2nd calendar year.

Components of Intermediate Examination:

Written

100 MCQs (single best, having two mark each) 200 Marks

10 SEQs (having 10 marks each) 100 Marks

Topics included in papers:

| | | |
|----------------------------------|-----------|----------|
| 1. Principles of General Surgery | (70 MCQs) | (7 SEQs) |
| 2. Anatomy | (08 MCQs) | (1 SEQs) |
| 3. Pathology | (10 MCQs) | (1 SEQs) |
| 4. Pharmacology | (04 MCQs) | (-----) |
| 5. Physiology | (08 MCQs) | (1 SEQs) |

Clinical, TOACS/OSCE & ORAL:

Total Marks 200

4 Short Cases

100 Marks

1 Long case
TOACS/OSCE & ORAL

50 Marks
50 Marks

Final Examination MS General Surgery
Total Marks: 1500

All candidates admitted in MS General Surgery course shall appear in Final examination at the end of structured training programme (end of 4th calendar year and after clearing Intermediate examination).

There shall be two written papers of 250 marks each, Clinical, TOACS/OSCE & ORAL of 500 marks, continuous assessment of 100 marks and thesis examination of 400 marks.

Written Component

Topics included in paper 1

- | | |
|---------------------------------------|-----------|
| 1. Hernias & Gastrointestinal Surgery | (20 MCQS) |
| 2. Hepatopancreaticobiliary Surgery | (15 MCQS) |
| 3. Non Trauma Emergency Surgery | (15 MCQS) |
| 4. Trauma / Critical Care Surgery | (15 MCQS) |
| 5. Genitourinary Surgery | (10 MCQS) |
| 6. Breast Surgery | (10 MCQS) |
| 7. Head & Neck/Neurosurgery | (15 MCQS) |

Topics Included In Paper 2

- | | |
|----------------------------------|-----------|
| 1. Paediatric Surgery | (20 MCQS) |
| 2. Cardiothoracic Surgery | (20 MCQS) |
| 3. Vascular & Transplant Surgery | (10 MCQS) |
| 4. Endoscopic Surgery | (10 MCQS) |
| 5. Plastic Surgery | (10 MCQS) |
| 6. Endocrine Surgery | (05 MCQS) |
| 7. Orthopaedic | (15 MCQS) |
| 8. Anaesthesia | (10 MCQS) |

Components of Final Examination

Theory

Paper I

250 Marks

3 Hours

5 SEQs
100 MCQs

50 Marks
200 Marks

Paper II

250 Marks

3 Hours

5 SEQs
100 MCQs

50 Marks
200 Marks

Only those candidates, who pass in theory papers, will be eligible to appear in the Clinical, TOACS/OSCE & ORAL.

Clinical, TOACS/OSCE & ORAL

500 Marks

Four short cases

200 Marks

One long case:

100 Marks

TOACS/OSCE & ORAL

200 Marks

Continuous Internal Assessment

100 Marks

Final MS General Surgery

Thesis Examination

Total Marks: 400

All candidates admitted in MS General Surgery courses shall appear in Final thesis examination at the end of 4th year of the MS programme. The examination shall include thesis evaluation with defense.

RECOMMENDED BOOKS

BASIC SCIENCES Part- I Examination:

Anatomy

- General Anatomy By: Professor Tassaduq Hussain
- Embryology: Langman's Embryology
- Gross Anatomy: Clinical Anatomy By: Shell
- Basic Histology By: Jenquiera
- Neuroanatomy By: Snell

Pharmacology

- Review of Pharmacology By: Lippincott's Illustrated

Pathology

- Microbiology By: Jawetz
- Haematology By: Hoffbrand Postgraduate Hematology
- Histopathology By: Robin's Pathology Basic Disease
- Chemical Pathology By: Bishop's

SURGERY:

Clinical:

1. An introduction to the symptoms and signs of surgical disease by Norman Browse
2. Churchill, pocketbook of differential diagnosis By: A. Raftery E. Lim, Edition 2001

Theory:

3. Essential of General Surgery, latest edition by Peter Lawrence
4. Essential of Surgical Specialties, latest edition by Peter Lawrence
Operative Surgery
5. General Surgery. Rob & Smith
6. General Surgery 2nd Ed. Burge DM

OTHER REFERENCES FOR EXTRA READING:

7. Bailey & Love's Short Practice of Surgery by: H. Bailey & R.J. McNeil
8. Scott: An Aid to Clinical Surgery by: HAF Dudley and BP Waxman
9. Principles of Surgery, 7th Edition by Seymour I. Schwartz, 1999.
10. Essential Surgery 1990 by: H. George Burkit and B. O'Donnel
11. Principle and Practice Surgert by Forrest, Carter, Macleod
12. Clunie GJA, Tjandra JJ, Thomas R.S.J. Textbook of Surgery, 2nd edn Blackwell Science Asia, Melbourne, 2001. ISBN 0867930233.
13. Clunie GJA, Tjandra JJ, Ross H. MCQ's and Short Answer Questions for Surgery. Blackwell Science Asia, Melbourne, 1999. Paperback. ISBN 0867930101. www.blacksci.co.uk/australi/books.htm
14. Forrest AP, Carter DC, MacLeod IB. Principles and Practice of Surgery - A Surgical Supplement to Davidson's Principles and Practice of

Medicine, 3rd edn. Churchill Livingstone, Edinburgh, 1995. ISBN 0443048606 www.us.elsevierhealth.com

15. Hunt PS, Marshall VC. Clinical Problems in General Surgery. Butterworths, Sydney, 1991. ISBN 0409492132. This publication is out of print and only available second hand.
16. Morris PJ, Malt RA. Oxford Textbook of Surgery, 2nd edn. Oxford University Press, New York, 2001. ISBN 0192628844 (three volume set). mnemosyne.oup-usa.org/medical
17. Williamson R. An Aid to Clinical Surgery, 6th edn. Churchill Livingstone, Edinburgh, 1998. ISBN 044305603X. www.us.elsevierhealth.com
18. Surgery: Pretest Self-Assessment and Review. ISBN: 0071359540. Publisher: McGraw-Hill, 2000, 9th Edition

SURGICAL ATLASES:

1. Operative Surgery, Principles and Techniques by Paul Nora.
2. Atlas of General Surgery, 3rd Edition by Carter.
3. Mastery of Surgery by Nyhus and Baker.
4. An Atlas of Surgical Operations by Zollinger and Zollinger.
5. Operative Orthopedics, 7th Edition by Campbell.
6. Vascular Surgery, 4th Edition by Robert Rutherford (2 volumes)
7. Johnson's Surgery of the Chest by Waldhausen and Pierce.

APPENDIX "E"
(See Regulation 9-iii)

MANDATORY WORKSHOPS

1. Each candidate of MD/MS/MDS program would attend the 04 mandatory workshops and any other workshop as required by the university.
2. The four mandatory workshops will include the following
 - a. **Research Methodology and Biostatistics**
 - b. **Synopsis Writing**
 - c. **Communication Skills**
 - d. **Introduction to Computer / Information Technology and Software programs**

} 3 months
3. The workshops will be held on 03 monthly basis.
4. An appropriate fee for each workshop will be charged.
5. Each workshop will be of 02 - 05 days duration.
6. Certificates of attendance will be issued upon satisfactory completion of workshops.

APPENDIX "F"
(See Regulation 9xxiii, 13, 14 & 16)

CONTINUOUS INTERNAL ASSESSMENTS

a) **Workplace Based Assessments**

Workplace based assessments will consist of Generic as well as Specialty Specific Competency Assessments and Multisource Feedback Evaluation.

Generic Competency Training & Assessments

The Candidates of all MD / MS / MDS programs will be trained and assessed in the following five generic competencies.

i. **Patient Care.**

- a. Patient care competency will include skills of history taking, examination, diagnosis, plan of investigation, clinical judgment, plan of treatment, consent, counseling, plan of follow up, communication with patient / relatives and staff.
- b. The candidate shall learn patient care through ward teaching, departmental conferences, morbidity and mortality meetings, core curriculum lectures and training in procedures and operations.
- c. The candidate will be assessed by the supervisor during presentation of cases on clinical ward rounds, scenario based discussions on patient management, multisource feedback evaluation, Direct Observation of Procedures (DOPS) and operating room assessments.
- d. These methods of assessments will have equal weightage.

ii. **Medical Knowledge and Research**

- a. The candidate will learn basic factual knowledge of illnesses relevant to the specialty through lectures/discussions on topics selected from the syllabus, small group tutorials and bed side rounds.
- b. The medical knowledge/skill will be assessed by the teacher during case based discussions and presentations to the supervisor.
- c. The candidate will be trained in designing research project, data collection, data analysis and presentation of results by the supervisor.

- d. The acquisition of research skill will be assessed as per regulations governing thesis evaluation and its acceptance.

iii. **Practice and System Based Learning**

- a. This competency will be learnt from journal clubs, review of literature, policies and guidelines, audit projects, medical error investigation, root cause analysis and awareness of healthcare facilities.
- b. The assessment methods will include case studies, presentation in morbidity and mortality review meetings and presentation of audit projects if any.
- c. These methods of assessment shall have equal weight-age.

iv. **Communication Skills**

- a. These will be learnt from role models, supervisor and workshops.
- b. They will be assessed by direct observation of the candidate whilst interacting with the patients, relatives, colleagues and with multisource feedback evaluation.

v. **Professionalism as per Hippocratic Oath**

- a. This competency is learnt from supervisor acting as a role model, ethical case conferences and lectures on ethical issues such as confidentiality, informed consent, end of life decisions, conflict of interest, harassment and use of human subjects in research.
- b. The assessment of residents will be through multisource feedback evaluation according to proformas of evaluation and its' scoring method.

Specialty Specific Competencies

- i. The candidates will be trained in operative and procedural skills according to a quarterly based schedule.
- ii. The level of procedural competency will be according to a competency table to be developed by each specialty.

iii. The following key will be used for assessing operative and procedural competencies:

a. **Level 1 Observer status**

The candidate physically present and observing the supervisor and senior colleagues

b. **Level 2 Assistant status**

The candidate assisting procedures and operations

c. **Level 3 Performed under supervision**

The candidate operating or performing a procedure under direct supervision

d. **Level 4 Performed independently**

The candidate operating or performing a procedure without any supervision

iv. **Procedure Based Assessments (PBA)**

a. Procedural competency will assess the skill of consent taking, preoperative preparation and planning, intraoperative general and specific tasks and postoperative management

b. Procedure Based assessments will be carried out during teaching and training of each procedure.

c. The assessors may be supervisors, consultant colleagues and senior residents.

d. The standardized forms will be filled in by the assessor after direct observation.

e. The resident's evaluation will be graded as satisfactory, deficient requiring further training and not assessed at all.

f. Assessment report will be sub

g. A satisfactory score will be required to be eligible for taking final examination.

Multisource Feedback Evaluation

- i. The supervisor would ensure a multisource feedback to collect peer assessments in medical knowledge, clinical skills, communication skills, professionalism, integrity, and responsibility.
- ii. Satisfactory annual reports will be required to become eligible for the final examination

b) Completion Of Candidate's Training Portfolio

- i. The Candidate's Training Portfolio (CTP) will be published (or computer based portfolio downloadable) by the university.
- ii. The candidates would either purchase the CTP or download it from the KEMU web site.
- iii. The portfolio will consist of the following components
 - a) Enrollment details.
 - b) Candidate's credentials as submitted on the application for admission form.
 - c) Timeline of scheduled activities e.g dates of commencement and completion of training, submission of synopsis and thesis, assessments and examination dates etc (**Appendix H**)
 - d) Log Book of case presentations, operations and procedures recorded in an appropriate format and validated by the supervisor.
 - e) Record of participation and presentations in academic activities e.g lectures, workshops, journal clubs, clinical audit projects, morbidity & mortality review meetings, presentation in house as well as national and international meetings.
 - f) Record of Publications if any.
 - g) Record of results of assessments and examinations if any
 - h) Synopsis submission proforma and IRB proforma and AS&RB approval Letter
 - i) Copy of Synopsis as approved by AS&RB
- iv. Candidates Training Portfolio shall be assessed as per proforma given in "**Appendix-G**".

Supervisor's Annual Review Report.

This report will consist of the following components:-

- i. Verification and validation of Log Book of operations & procedures according to the expected number of operations and procedures performed (as per levels of competence) determined by relevant board of studies.
- ii. A 90 % attendance in academic activities is expected. The academic activities will include: Lectures, Workshops other than mandatory workshops, Journal Clubs, Morbidity & Mortality Review Meetings and Other presentations.
- iii. Assessment report of presentations and lectures
- iv. Compliance Report to meet timeline for completion of research project.
- v. Compliance Report on Personal Development Plan.
- vi. Multisource Feedback Report, on relationship with colleagues, patients.
- vii. Supervisor will produce an annual report based on assessments as per proforma in appendix-G and submit it to the Examination Department.
- viii. 75 % score will be required to pass the Continuous Internal Assessment on annual review.

APPENDIX " G "

(See Regulation 9ix, 9xxiii-d, 10, 11, 14 & 16)

Supervisor's Evaluation

PROFORMA FOR CONTINUOUS INTERNAL ASSESSMENTS

| | | |
|--|--|------------------------|
| 1. Generic Competencies | | |
| (Please score from 1 – 100. 75% shall be the pass marks) | | Component Score |
| i. Patient Care | | 20 |
| ii. Medical Knowledge and Research | | 20 |
| iii. Practice and System Based Learning | | |
| • Journal Clubs | | 04 |
| • Audit Projects | | 04 |
| • Medical Error Investigation and Root Cause Analysis | | 04 |
| • Morbidity / Mortality / Review meetings | | 04 |
| • Awareness of Health Care Facilities | | 04 |
| iv. Communication Skills | | |
| • Informed Consent | | 10 |
| • End of life decisions | | 10 |
| v. Professionalism | | |
| • Punctuality and time keeping | | 04 |
| • Patient doctor relationship | | 04 |
| • Relationship with colleagues | | 04 |
| • Awareness of ethical issues | | 04 |
| • Honesty and integrity | | 04 |
| 2. Specialty specific competencies | | |
| Please score from 1 – 100. 75% shall be the pass marks | | Score achieved |
| Operative Skills / Procedural Skills | | |
| 3. Multisource Feedback Evaluation (Please score from 1 – 100. 75% shall be the pass marks) | | |
| 4. Candidates Training Portfolio (Please score from 1 – 100.75% shall be the pass marks) | | |
| (Please score from 1 – 100. 75% shall be the pass marks) | | Component Score |
| i. Log book of operations and procedures | | 25 |
| ii. Record of participation and presentation in academic activities | | 25 |
| iii. Record of publications | | 25 |
| iv. Record of results of assessments and examinations | | 25 |